

Protecting the Protectors: Improving Health and Safety for Disaster Responders

**Satellite Conference
Tuesday, October 25, 2005
12:00-1:30 p.m. (Central Time)**

**Produced by the Alabama Department of Public Health
Video Communications Division**

Faculty

**Glenn Paulson, PhD
Professor of Environmental and
Occupational Health
University of Medicine and Dentistry,
New Jersey - School of Public Health
Director of New Jersey Center for
Public Health Preparedness**

Program Objectives

- To present the “state of the art” on the inter-related and complex issues of medical surveillance, environmental assessment and psychological impact of natural, accidental, and intentional disasters on worker health and safety.

Program Objectives

- To describe the implications of the experience of the US military for civilian responders.
- To describe the occupational health and safety lessons from the World Trade Center, the anthrax attacks, hurricanes, and other events.

Program Objectives

- To summarize the current activities in the aftermath of Katrina and Rita to protect the health and safety of the various groups of response workers.

Worker Health and Safety in the National Incident Management System (NIMS)

- NIMS released March, 2004
- Calls for Safety Officer to report directly to Incident Commander
 - Not Health and Safety Officer
 - Duties: assess hazardous environments, coordinate safety efforts, promote responder safety and general safety of operations (health mentioned only once)

Worker Health and Safety in the National Incident Management System (NIMS)

- Optional Medical Advisor--for victims, not workers
- ICS Logistics Section's Medical Unit to provide services for responders when they become patients
- "...occupational health and mental health issues must also be addressed...." but only during the "recovery" phase

Worker Health and Safety in the National Incident Management System (NIMS)

- "...analytical data...on public health and environmental monitoring..."
- In section on standards, NIOSH is included, but not OSHA

Worker Health and Safety in the National Response Plan

- Published December 2004
- One Key Concept:
"Coordinating...worker safety and health..."
- The first "top priority" for incident management: Save lives and protect the health and safety of the public, responders, and recovery workers."

Worker Health and Safety in the National Response Plan

However.....

- Emergency Support Function Annexes, 15 in number, which define "missions and responsibilities" of Federal agencies, do not include worker health and safety
- Instead, the 9 Support Annexes, which "provide guidance", has worker safety and health--last on the list

"Protecting the Protectors"

- Two day conference held on September 27 - 28th, 2005, in East Brunswick, NJ.
- Co-sponsored by the New Jersey Center for Public Health Preparedness at UMDNJ and the Johns Hopkins Center for Public Health Preparedness.

"Protecting the Protectors"

- Speakers and session leaders from US Dept. of Homeland Security and Dept. of Defense, EPA, OSHA, NJ Dept. of Health, UMDNJ, Johns Hopkins, and other organizations involved in worker health and safety.

Purpose of the Conference

- To develop recommendations for medical/psychological surveillance and environmental monitoring to protect workers involved in incidents under the National Response Plan.

Conference Themes

- Medical Surveillance
- Environmental Assessment
- Psychological Impact

Integrate!



Medical Surveillance

- **Leader:**
 - Clifford Mitchell, Johns Hopkins
- **Speakers:**
 - Michael Gochfeld, UMDNJ
 - Jacqueline Moline, Mt. Sinai

Purposes and Value of Medical Surveillance

- Detect early evidence of abnormalities
- Identify evidence of exposure
- Lead to treatment when called for
- Provide real-time advice on hazards, risks, and PPE to responders, incident safety officer, and incident commander
- Assess long-term physical and psychological consequences in workers

Surveillance Versus Screening

- **Screening:** typically one-time only for an individual, either before, during or after potential exposure
- **Surveillance:** if possible, both before, during, and after potential exposure, to determine if additional medical or psychological interventions are needed over time

Surveillance Versus Screening

	Pre-event	Post-event	Year 1	Year 3
Worker 1	↓	↓	↓	↓
Worker 2	↓	↓	↓	↓
Worker 3	↓	↓	↓	↓

Screening

Surveillance

Disasters Are Not Routine

- By definition, a disaster is not a typical event
- Uncontrolled and changing conditions are the norm
- Natural events, (e.g., earthquake, hurricane)
- Accidental events, (e.g., hazardous material spill, industrial catastrophe)
- Intentional events, (e.g., “dirty” bomb, bioterror attack)

Who Are the “Protectors”?

- Traditional responders and non-traditional responders
- Traditional-
 - Fire, police, EMTs, search and rescue teams, health care professionals, HazMat teams
- Non-traditional-
 - Construction workers, communication technicians, animal rescue workers, spontaneous volunteers, reporters, volunteers, cleanup workers, etc.

Traditional Responders

- Pre-event basic medical surveillance and/or screening is likely for some, but not all, groups; specialized bio-monitoring rare
- Baseline psychological data rarely obtained routinely, no specialized bio-monitoring
- Many groups carry PPE with them
- Rely heavily on prior training and experience
- Often easy to locate post-event

Non-Traditional Responders

- Generally do not consider themselves responders
- Difficult to reach with information on hazards, risks, PPE, etc.
- Have little or no training or experience regarding disasters
- Lack PPE
- Baseline medical/psychological information sparse
- Often hard to locate post-event

Key Conclusions

- Medical surveillance during the event provides critical information regarding PPE needs, target environmental assessment more effectively, and helps responders recognize and understand risks
- Coupling of surveillance results to incident command structure is not guaranteed

Key Conclusions

- Surveillance post-event can help minimize longer term medical and psychological problems
- Funding for surveillance activities is critical - but often not available in a timely manner

Exposure Assessment

- Leader:
 - Daniel Wartenberg, UMDNJ
- Speakers:
 - Mitchell Erickson, US Dept. of Homeland Security
 - Sven Rundman, OSHA

Key Conclusions

- Qualitative and semi-qualitative environmental “data” can be critical in the early stages
- As time passes, more sophisticated techniques will provide more quantitative data

Key Conclusions

- Data and interpretations must be communicated to Safety Officer and Incident Commander as well as medical and mental health teams
- Data and interpretations should be available to all classes of workers and the public

Key Conclusions

- Job hazard analyses should influence environmental monitoring as well as medical surveillance
- Personal monitoring, objective technical data, mathematical modeling, and human exposure measures are vital in determining risk--but these will not be available in the early stages

Key Conclusions

- Train responders and volunteers to recognize and report safety and health concerns (also helps medical and psychological efforts)

Psychological Impact

- **Leader:**
 - Jan Shubert, US EPA
- **Speakers:**
 - George Everly, Johns Hopkins
 - E. Cameron Ritchie, US Army

Implications of the Experience of the US Military for Civilian Responders

- History of Stress Casualties in the 20th Century
- World War I: shell shock, with evacuation frequent, led to chronic conditions
- World War II: battle fatigue, same approach, same consequences

Implications of the Experience of the US Military for Civilian Responders

- During and after Korean War, developed of battlefield counseling called PIES (proximity, immediacy, expectancy, simplicity)
- Later added “four hots and a cot” to PIES
- Vietnam: first use of phrase Post-Traumatic Stress Disorder

Implications of the Experience of the US Military for Civilian Responders

- Desert Storm/Shield: medically unexplained physical symptoms, concerns about potential toxins a new source of stress
- PIES, hots and cot also effectively used in Somalia, Kosovo, Bosnia, etc.

Implications of the Experience of the US Military for Civilian Responders

- Operation Iraqi Freedom’s new stressors: WMD, rapid tempo of operations, continual danger, length of deployment
- 2004 study: 16-19% of returning soldiers had PTSD, anxiety or depression 3-6 month post-deployment (5% pre-deployment) (anonymous survey)

Implications of the Experience of the US Military for Civilian Responders

- Clinical (in person) interviews show lower rate, but 3-5% referred to behavioral health professionals

Key Conclusions

- Rapid intervention should be based on a rapid recognition of need
- Many have barriers to seeking psychological health care, including perceptions of weakness, embarrassment, and logistics

Key Conclusions

- On-scene intervention will help many to seek continued care who would not otherwise seek care later, after their role in the disaster is over
- While disaster exposure is necessary, it is not sufficient in and of itself to create lasting post-traumatic psychological disorders

A Quick Case Study:

Medical surveillance,
psychological health, and
environmental assessment
at the World Trade Center



Dust cloud from the WTC collapse. Source: NYPD



What Happened at the World Trade Center?

- A mix of exposures:
 - Pulverized cement, gypsum, and glass
 - Asbestos, silica, fibrous glass
 - Heavy metals
 - Soot, smoke, volatile organic compounds
 - Acid mists

World Trade Center Hazards

- Inhalation hazards: extremely high concentration of dust present immediately after the collapse
- Physical and other safety hazards, including fires, smoke, collapsing buildings, falling debris
- Psychological trauma
- Blood-borne pathogens

World Trade Center Medical Effects

- Upper airway inflammation
 - Rhinitis/sinusitis
 - Pharyngitis
 - Laryngitis/tracheitis
 - Reactive upper airway dysfunction
- Bronchitis
- Reactive airway disease (RADS)/Asthma
- Acute irritant effects

World Trade Center Psychological Effects

- Consequences
 - Post Traumatic Stress Disorder
 - Anxiety
 - Depression

World Trade Center Psychological Effects

- Causes
 - Many rescue and recovery workers lost family, friends or colleagues
 - Few survivors rescued
 - Many had contact with human remains
 - Reactions exacerbated by fatigue, sleep deprivation

Program Failed to Monitor 9/11 Workers, Report Finds

(headline from New York Times, Sept. 10, 2005)

- Government Accountability Office issued a report stating that a monitoring program for federal workers was shut down over a year ago
- As a result, thousands of federal workers at the WTC site did not have access to medical treatment after their 9/11 response

Program Failed to Monitor 9/11 Workers, Report Finds

(headline from New York Times, Sept. 10, 2005)

- “If you don’t monitor, you don’t know if there’s a problem. We have to get the response right for 9/11, because it sets the precedent for other natural disasters,” said Rep. Carolyn B. Maloney

Consensus Recommendations from “Protecting the Protectors” Conference

- Spread the word!
- Result: conference steering committee will prepare three revised versions of the pre-conference white papers plus an additional paper that will summarize and integrate the three papers and include the recommendations from the conference

Consensus Recommendations from “Protecting the Protectors” Conference

- Presentations and keynote address posted on www.njcphp.org

Consensus Recommendations: Surveillance

- Integrate medical and psychological surveillance activities, both during the disaster and later

Consensus Recommendations: Surveillance

- Benefits:
 - by identifying exposures and early symptoms, both individual care and preventive interventions will be far more effective, especially during the disaster but also later
 - during the disaster, the workers, both volunteer and paid, will be more productive and effective in carrying out their duties

Consensus Recommendations: Surveillance

- Surveillance should be voluntary and confidential
- Each worker receives his/her “data”
- Aggregated medical and psychological data and interpretations will be publicly available

Consensus Recommendations: Surveillance

- Where possible, begin surveillance before deployment of the responders
- Conduct surveillance during the disaster response and after, for an extended period of time
- Registering all responders appears essential

Consensus Recommendations: Surveillance

- Incorporate surveillance results into the Incident Command System
- At the disaster location, have a Surveillance Tent next to the First Aid Tent and the Food Tent

Consensus Recommendations: Environmental Assessment

- Begin as soon as possible, recognizing that the early phase will be more qualitative than quantitative
- Environmental data and their interpretations should be closely linked to the Incident Command System

Consensus Recommendations: Environmental Assessment

- Risk communication activities, based on the data and interpretations, to both the workforce and the general public, should be an integral feature of the overall disaster response

What are the current worker health and safety activities post-Katrina and post-Rita?

- Some actions taken, others in the works
- CDC recommendations for response workers and volunteers
- NIOSH has posted screening tool covering both medical and psychological topics
- OSHA has advisors on-scene; has suspended compliance activities

What are the current worker health and safety activities post-Katrina and post-Rita?

- NIEHS providing “just in time” safety and health training as well as other information
- USEPA is promptly posting its data
- These and other agencies are providing “psychological first aid” to their own workers

What are the current worker health and safety activities post-Katrina and post-Rita?

- Worker health and safety regarding mold and mildew exposure and cleanup available from www.wetp.org and www.soeh.org, among other sources. Links to this can be found at njcphp.org.

Probable gaps in current worker health and safety activities post-Katrina and post-Rita

- No indication there is any system for registering the paid workforce (governmental and private sector) or unpaid volunteers for surveillance
- No hint that any agency is considering long-term surveillance of any component of the workforce (including its own workers and contractors)

Probable gaps in current worker health and safety activities post-Katrina and post-Rita

- Effectiveness of Safety Officer, activation of NRP Worker Safety and Health Support Annex, etc., not clear at this time

Closing Question:

Is the glass even half full yet?

Concluding Note:

Occupational health and safety issues for the entire preparedness workforce is a high priority for our Center. To stay abreast of the efforts of us and others on this topic, join our mailing list at www.njcphp.org.

Upcoming Programs

Diabetes: Nutrition and Exercise
(Part 2 of 3)
Tuesday, November 1, 2005
2:00-4:00 p.m.

Diabetes and Complications,
(Part 3 of 3)
Tuesday, November 8, 2005
2:00-4:00 p.m.

For a complete listing of upcoming programs visit www.adph.org/alphtn